BEN DOUGLASS

PLANETARY SCIENCE PH.D. CANDIDATE

ARIZONA STATE UNIVERSITY
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EDUCATION

2022-2027 **Arizona State University**
Ph.D., Geological Sciences

Thesis Topic: *Investigating Surface and Subsurface Ices on Planetary Bodies Using Crater Morphology*

Advisor: Dr. Jim F. Bell III

2017-2022 **University of Colorado Boulder**
B.A. in Astrophysics
Minor in Creative Technology & Design

RESEARCH EXPERIENCE

2022-Present **Investigating Subsurface Ice on Mars Using Crater Morphology**
Arizona State University

Measuring and analyzing crater depth-to-diameter ratios and morphologic characteristics in pole-to-pole longitudinal strips and across the Martian hemispheric dichotomy to constrain the presence of subsurface ice in the planet's geologic history.

2025-Present **LBT Image and Spectral Analysis of Interstellar Comet 3I/ATLAS**
Arizona State University

Awarded 4 hours of observing time on the Large Binocular Telescope (Director's Discretionary Time) to observe interstellar comet 3I/ATLAS using LMIRCam imaging and PEPSI spectroscopic observations. Data currently under analysis.

2022-2024 **Analysis of Direct Images of Exoplanets and Brown Dwarfs Orbiting Type M Stars**
Arizona State University

Identified young stars with candidate companions in the Taurus star-forming region and analyzed LBT/LMIRCam data to classify companions and determine their physical properties.

2018-2021 **Constraining the Thickness of the Lunar Regolith Layer Using Cold-Spot Craters**
NASA Jet Propulsion Laboratory

Collected data from young lunar impact craters using Lunar Reconnaissance Orbiter Camera (LROC) images. Analyzed differences in boulder populations surrounding craters to estimate thickness of the regolith layer throughout the lunar maria.

MISSION EXPERIENCE

2022-Present — **Curiosity Rover/Mars Science Laboratory (MSL)**
NASA Jet Propulsion Laboratory

Calibrated Mastcam multispectral data and trained undergraduate researchers. Attended MSL Operations meetings and Science Talks, and presented research at MSL Science Team Meeting in Toulouse, France.

2024 — **Perseverance Rover/Mars 2020: Science Payload Downlink Analyst**
NASA Jet Propulsion Laboratory

Analyzed newly received rover science data to assess instrument performance, process and interpret observations, and report results to the science team to inform planning of subsequent rover activities.

AWARDED TELESCOPE TIME

2025 — **Large Binocular Telescope (LBT)**
PI: Ben Douglass
4.0 hours

Director's Discretionary Time awarded for LBT imaging with LMIRCam and spectroscopy with PEPSI of interstellar comet 3I/ATLAS.

2023 — **Large Binocular Telescope (LBT)**
PI: Jenny Patience
2.0 hours

An LBT search and characterization for companions to the lowest mass stars in the Taurus star-forming region.

PUBLICATIONS

2019 — C.M. Elder, **B. Douglass**, R.R. Ghent, P.O. Hayne, J.-P. Williams, J.L. Bandfield, E. Costello, (2019) *The Subsurface Coherent Rock Content of the Moon as Revealed by Cold-Spot Craters.* JGR– Planets, 124.

2025 — A.R. Trussell, J.F. Bell III, *et al.*, … **Douglass, B.S.** (2025). *Dark-toned halite-enriched veins above the marker band record a drying environment in Gale Crater.* Journal of Geophysical Research: Planets, 130(10).

In preparation — Marah Brinjikji, Jenny Patience et al., … **Benjamin Douglass** (In Prep), *LIRAS: The LMIRCam Imaging Reduction and Analysis Suite and its Application to a Direct Imaging Survey*

In preparation — *The Impact of Crater Age on Estimates of Regolith Thickness Derived from Ejecta Blanket Block Abundance (In Prep);* ***B.S. Douglass****, C.M. Elder*

PRESENTATIONS & INVITED TALKS

2026	**Depth-to-Diameter Ratios of Simple Impact Craters Across the Martian Hemispheric Dichotomy: Implications for the Global Distribution of Ground Ice** *Lunar and Planetary Science Conference (LPSC)* Oral Presentation
2025	**Using Crater Depth/Diameter Ratios to Infer Subsurface Ice Presence** *Lunar and Planetary Science Conference (LPSC)* Poster Presentation
2024	**Using Crater Depth/Diameter Ratios to Infer Subsurface Ice Presence** *10th International Conference on Mars* Poster Presentation
2023	**Using Crater Depth/Diameter Ratios to Infer Subsurface Ice Presence** *American Geophysical Union (AGU)* Poster Presentation
2021	**Constraining the Thickness of the Lunar Regolith Layer Using Cold-Spot Craters** *Lunar and Planetary Science Conference (LPSC)* Oral Presentation
2018-2021	**JPL Internship Research: Cold-Spot Craters and Regolith Thickness** *Lunar Reconnaissance Orbiter Diviner Team Meetings* Oral Presentations – 2018, 2019, 2020, 2021

SKILLS

Programming	**MATLAB**
	Python
	IDL
Software	**JMARS**
	ArcGIS
	QGIS
	ISIS3
	Ames Stereo Pipeline